

EXPERIMENTAL STUDY OF ENERGY DEPENDENCE OF PROTON INDUCED FISSION CROSS SECTIONS FOR HEAVY NUCLEI IN THE ENERGY RANGE 200-1000 MeV

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The results of the total fission cross section measurements for ^{nat}Pb , ^{209}Bi , ^{232}Th , ^{233}U , ^{235}U , ^{238}U , ^{237}Np and ^{239}Pu nuclei at the proton energy range 200-1000 MeV with step 100 MeV are presented. Experiments were carried out at 1 GeV synchrocyclotron of PNPI with the updated beam system that allowed one to have proton beams in all energy range with intensities up to 10^7 protons/s. The measurement method is based on the registration in coincidence of both complementary fission fragments by two gas parallel plate avalanche counters, located at a short distance and opposite sides of investigated target. The insensitivity of parallel plate avalanche counter to photons, neutrons and protons allowed us to place the counters together with target between immediately in the proton beam thereby providing a large solid angle acceptance for fission fragment registration. The proton flux on the target to be studied was determined by direct counting of protons by scintillation telescope and using secondary reaction of elastic proton scattering by CH_2 target. Obtained results are compared with other experimental data and show that the fission cross sections do not depend strongly on the incident proton energy over this entire energy range.